

WHAT IS CLAIMED IS:

1. A surface acoustic wave device comprising:
a surface acoustic wave filter element having a
5 piezoelectric substrate on which comb-like electrodes
are formed; and
a package having a first cavity in which the
surface acoustic wave filter is housed,
the package including a flexible chip mounting
10 base that has a first surface on which the surface
acoustic wave filter is mounted and has a thickness
equal to or less than 100 μm .
2. The surface acoustic wave device as claimed
15 in claim 1, wherein the package has a second cavity via
which a second surface of the flexible chip mounting
base opposite to the first surface is exposed.
3. The surface acoustic wave device as claimed
20 in claim 1, wherein the package includes a lower frame
member that is attached to the flexible chip mounting
base and defines a second cavity having a size larger
than that of the surface acoustic wave filter chip.
- 25 4. The surface acoustic wave device as claimed
in claim 1, wherein the package includes:
a second cavity to which a second surface of the
flexible chip mounting base opposite to the first
surface is exposed; and
30 a lid board that seals the second cavity.
5. The surface acoustic wave device as claimed
in claim 1, wherein the package includes a lower board
having a plate shape, the lower board being attached to
35 the flexible chip mounting base at positions that are
further out than the surface acoustic wave filter chip.

6. The surface acoustic wave device as claimed
in claim 5, further comprising an adhesive layer that
joins the flexible chip mounting base and the lower
board and are provided at the positions that are
5 further out than the surface acoustic wave filter chip.

7. The surface acoustic wave device as claimed
in claim 1, wherein the package includes a lid that
hermetically seals the first cavity and is attached to
10 a backside of the surface acoustic wave filter chip.

8. The surface acoustic wave device as claimed
in claim 1, wherein the package includes a lid that
hermetically seals the first cavity, and an electrical
15 shield member that is attached to the lid and faces the
surface acoustic wave filter chip.

9. The surface acoustic wave device as claimed
in claim 1, the package includes an electrical shield
20 member attached to the flexible chip mounting base.

10. The surface acoustic wave device as claimed
in claim 8, wherein the electrical shield member is a
planar pattern.
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11. The surface acoustic wave device as claimed
in claim 9, wherein the electrical shield member is a
planar pattern.

12. The surface acoustic wave device as claimed
in claim 1, wherein the surface acoustic wave filter
chip has metal bumps, which are electrically and
mechanically connected to on-base interconnection lines
on the flexible chip mounting base via an electrically
35 conductive resin.

13. The surface acoustic wave device as claimed

in claim 1, wherein the surface acoustic wave filter chip has metal bumps, which are electrically and mechanically connected to on-base interconnection lines on the flexible chip mounting base via an electrically anisotropic conductive sheet.

14. The surface acoustic wave device as claimed in claim 1, wherein the surface acoustic wave filter chip is flip-chip bonded to the flexible chip mounting base in the first cavity.

15. The surface acoustic wave device as claimed in claim 1, wherein the flexible chip mounting base has a bending elastic stiffness of 2 ~ 8 GPa.

16. The surface acoustic wave device as claimed in claim 1, wherein the flexible chip mounting base includes at least one of bismaleimide-triazine resin, polyphenylether and polyimide resin.

17. The surface acoustic wave device as claimed in claim 1, wherein the package comprises a lower board provided so that another cavity is defined between the flexible chip mounting base and the lower board.

18. The surface acoustic wave device as claimed in claim 1, wherein terminals for making external connections are provided on a backside of the flexible chip mountingbase.

19. A method of fabricating a surface acoustic wave device comprising the steps of:

face-down bonding a surface acoustic wave filter chip on a flexible chip mounting base having a thickness equal to or less than 100 μm ; and

attaching a first frame member to which a lid is attached to define a first cavity to the flexible chip

mounting base so that the surface acoustic wave filter chip is housed in the first cavity and is hermetically sealed.

5 20. The method as claimed in claim 19, further comprising a step of attaching a second frame member to the flexible chip mounting base at positions that are further out than the surface acoustic wave filter chip, the second frame defining a second cavity to which a
10 backside of the flexible chip mounting base is exposed.

 21. The method as claimed in claim 19, further comprising a step of attaching the lid to a backside of the surface acoustic wave filter chip with an adhesive.

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 22. A method of fabricating a surface acoustic wave device comprising the steps of:

 attaching a first frame member to a flexible chip mounting base having a thickness equal to or less than
20 100 μm , the first frame member defining a first cavity;

 face-down bonding a surface acoustic wave filter chip to the flexible chip mountingbase; and

 attaching a lid to the first frame member so that the surface acoustic wave filter chip is accommodated
25 in the first cavity and is hermetically sealed.

 23. The method as claimed in claim 22, further comprising a step of attaching a second frame member to the flexible chip mounting base at positions that are
30 further out than the surface acoustic wave filter chip, the second frame defining a second cavity to which a backside of the flexible chip mounting base is exposed.

 24. The method as claimed in claim 22, further
35 comprising a step of attaching the lid to a backside of the surface acoustic wave filter chip with an adhesive.

25. A method of fabricating a surface acoustic wave device comprising the steps of:

attaching a surface acoustic wave filter chip to a backside of a lid with an adhesive; and

5 faced-down bonding the surface acoustic wave filter chip to a flexible chip mounting base to which a first frame member defining a first cavity is attached, so that the surface acoustic wave filter chip is housed in the first cavity and is hermetically sealed,
10 the flexible chip mounting base having a thickness equal to or less than 100 μm .

26. The method as claimed in claim 25, further comprising a step of attaching a second frame member to
15 a backside of the flexible chip mounting base at positions that are further out than the surface acoustic wave filter chip.